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• 計畫英文名稱	Development of Sacchachitosan from Ganoderma and Application Study (II)
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• 中文關鍵字	微晶纖維素; 顆粒形態; 靈芝; 壓密性; 可壓縮性; 基因轉染; 載體
• 英文關鍵字	Microcrystalline cellulose; Particle morphology; Ganoderma; Compactibility; Compressibility; Gene transfection; Vector
• 中文摘要	去乙醯機丁質是天然高分子，且對於細胞的毒性低，本身又帶有多量的正電荷，能夠與欲轉染的 DNA 以靜電力結合，文獻指出去乙醯機丁質能與細胞膜表面的靜電荷以天然的靜電力牽滯住，使其能自然嵌合入細胞膜以胞飲作用的型式進入細胞，所以近年來眾多關於基因傳遞系統的研究均選擇以去乙醯幾丁質作爲轉染的載體。目前許多研究中所使用的去乙醯機丁質是將甲殼動物的幾丁質外殼去乙醯化後所得的產物，而本研究則是利用本實驗室所開發的靈芝去乙醯幾丁質來作爲載體，並討論不同製成條件所得的靈芝去乙醯機丁質與市售商品間的差異。根據實驗結果顯示，不同的反應溫度和時間會影響去以醯化的程度，而其中以 130 ℃、 2 小時的製成條件所得的產率 (13.6%)最高。以電泳方式觀察靈芝去乙醯幾丁質包覆 DNA 的結果發現，市售的去乙醯機丁質可包覆 DNA 的比例 (chitosan/DNA= 1：4)，高於靈芝去乙醯幾丁質 (1：1)。在細胞體外轉染實驗中，不同製程條件所得的靈芝去乙醯幾丁質對於 HeLa 細胞轉染能力的效力表現雖不若是售的去乙醯機丁質，但經由螢光顯微鏡仍可以看出靈芝去乙醯幾丁質亦具有相當的基因轉染效果。
• 英文摘要	Chitin processed from fungi such as Ganoderma was further deacetylated to form chitosan. Mucoadhesive characteristic of chitosan has been used to develop many dosage form. The use of viral vectors that demonstrated high transfection efficiency are limited, due to some adverse effects caused by the cell-infected virus. The aim of this study is to compare the transfection efficiency of chitosans from various sources and the optimal condition of processing fungal chitin into chitosan was also investigated. Results showed that, in the investigation of optimal processing condition, the highest yield of Sacchachitosan was obtained by treatment with 50% NaOH

solution at 130.degree.C for 2 hours. Complex formation between chitosan and DNA was confirmed by agarose gel electrophoresis. The investigation of fluorescent microscopy revealed that, including Sacchitosan, those commercial chitosans we selected in this study were capable of carrying genes into HeLa cells. FASCan analysis also validated this observation except that Sacchachitosan/DNA complex showed less significant but still detectable expression of transfection.